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BULLETIN OF THE DEPARTMENTS OF HISTORY AND POLITICAL AND ECONOMIC SCIENCE IN QUEEN'S UNIVERSITY, KINGSTON, ONTARIO, CANADA.

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THE PROBLEM OF THE UPPER ST. LAWRENCE

BY

FRANCIS KING, K.C.

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THE PROBLEM OF THE UPPER ST. LAWRENCE

By Francis King, K.C.

THE waters of the mighty St. Lawrence have continued to roll under its bridges free and untrammelled for many a year since the idea of opening the Great Lakes to ocean shipping first became more than a dream. Even the new Welland Ship Canal, the undertaking which brought the deepened St. Lawrence within the range of possibility, is only now nearing completion and promising to open its great gates in 1930. Fifteen years have passed since the dredges began to work their way across the twenty-five miles of distance and up the 326 feet of difference of level between Lakes Ontario and Erie. The war, of course, lengthened this period unduly but, even without obstacles, works of this magnitude are not built in a day; and it is just as well that many a year should pass between first proposals and actual commitment to such an undertaking. The decision to commence the new Welland Canal was not made until after prolonged argument turning largely on the question of the problematical saving of a cent or two on the freight charges per bushel of grain if the large upper lake vessel could reach the foot of Lake Ontario without breaking bulk before trans-shipping cargo for Montreal. There was in this discussion no international problem, no conflict between federal and provincial or state rights, no debate as to the advantages and disadvantages of developing navigation and power concurrently, no question of ranking the respective rights to use the water, no rivalry of routes to be considered. Any one of these things might have sufficed to postpone the new Welland Canal indefinitely, but it was all plain sailing; the turbulent waters and rocky shoals of the St. Lawrence

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problem were to be encountered on quite another day. Who then is to venture to predict the time when the white horses of the St. Lawrence rapids will be bridled and harnessed?

There are those who say that the new Welland Ship Canal was undertaken in advance of its time and that, when completed, it will not of itself readily make any alteration in the present system of transportation. These critics point out that shipping has been accommodating itself very well to existing conditions. Upper lake tonnage has increased in size and number of vessels without regard to any possible extension of voyage below Lake Erie and certainly with no possible expectation of venturing upon salt water. The only change in type has been the addition of beam to compensate for restricted drafts. The *Glenmohr,* now the *Lemoyne* of Canada Steamship Lines, built in 1926 for the Great Lakes Transportation Company at Midland, Ontario, is 632 feet in length with a beam of 70 feet instead of the usual 60 feet and the mark of half a million bushels wheat carrying capacity has been left well behind. For the waterhaul from Buffalo or Port Colborne to Montreal a fleet of smaller vessels increasing in number and variety of craft is also available. A type of steamer has appeared of relatively light construction and low free-board but great carrying capacity (over 90,000 bushels), quite out of place on the wide expanses of the upper lakes but well enough adapted for the sheltered waters of Lake Ontario and the river. Moreover, these trans-shipped cargoes of Canadian grain are not carried to Montreal under the flag of the Canadian Merchant Marine only. Ships flying the Stars and Stripes, notwithstanding repeated protests from Canadian owners, have constantly joined in carrying Canadian wheat from Fort William to Montreal in violation of the spirit, if not the letter, of the Canadian coasting laws by loading at Buffalo cargoes brought to that port by upper lake vessels of the same flag. That which would be an offence if

done by one foreign carrier has been countenanced by Canada because done by two, and Parliament, in the meantime, has refrained from amending our statute to accord with the more explicit and efficacious language of the Act of Congress on the same subject.

Others, again, claim that the small additional freight rate which will be offered for carriage to the foot of Lake Ontario instead of the foot of Lake Erie will not induce the owner of heavy and expensive upper lake tonnage to add the perils of navigation through the Welland Ship Canal to the dangers necessarily experienced in coming that far. There is no doubt that, notwithstanding the excellent and most modern character of this canal, its navigation will be no easy task, particularly with a large ship of lake type when upbound light—down at the stern and up at the bow—across country in a beam wind. Even if owners are willing to take risks under protection of insurance, underwriters and increased premiums will keep big boats out of the canal. In brief, it is said that a vessel designed and properly built to load deep and full, and to withstand the storms of Lake Superior is one thing, and that a vessel designed to cross country and to suffer the "slings and arrows of outrageous fortune" in a canal is another, totally different: a statement theoretically true, yet not true enough—at least as to various sizes and types of vessels—to influence the government which undertook the building of the canal.

This may seem to wander from the path indicated by the title of this paper. But in fact it presents indirectly some of the more simple and easy questions which enter into the problem of opening the St. Lawrence to deep navigation and suggests some *a fortiori* reasons why the larger upper lake ships will never seek the harbour of Montreal. It also leads directly to the assertion made in public by the Minister of Railways and Canals who was in office when the Government of Canada determined upon the new Welland Ship Canal,

to the effect that this great work would never have been undertaken if the deepening of the St. Lawrence had not been contemplated as a further improvement of the route to the sea, which would naturally and certainly follow. That statement was made when the tangled intricacy of the problem of the St. Lawrence development was as little contemplated as was the Great War and all its consequences. There is no doubt that the idea of the larger work was then exceedingly nebulous. Four things above all others served to transform the nebula into a star of the first magnitude.

There was, in the first place—at least in the minds of those who were then giving any thought to the future—a realization that traffic would some day outgrow the existing St. Lawrence canals, as it has repeatedly in the past: an opinion justified then only by experience and by faith in the progress of Dominion trade, but later abundantly confirmed by developments since the war, as witness figures submitted later in this paper. There was, in the second place, the ripening of the thought in western minds—prompted possibly by other interests—that something more could be cut from the freight rate on grain to the sea and put in the pocket of the western farmer if the lakes were more effectively linked with the ocean. This synchronized with the rapidly growing ambition of many lake ports to welcome to their harbours ocean ships bearing in unbroken bulk the products of all countries of the world: ships, by the way, of heavier tonnage and better class than the forty odd vessels of Scandinavian registry which carried cargoes across the lakes or down the river during the past season. Soon an organization, the Great Lakes-Tidewater Association, including in its membership the governors of fifteen States of the Union and prominent representatives from many lake ports, became busy, in season and out of season, with propaganda of undoubted force and weight, and a slogan "On to the sea." With this, in the third

place, came a real demand for more electrical energy in eastern Ontario, coupled with increasing pressure upon the Government of Canada from capitalists interested in the development of power from the river and seeking concessions for that purpose. At the same time and in the same way the eyes of our cousins south of the international boundary were turned also to the St. Lawrence rapids and their tremendous waste of energy. Then too, in the fourth place, as the result of sad experience, owners of Canadian lake shipping, represented by the Dominion Marine Association, were complaining bitterly of the effect of currents developed in the canals by utilization of canal water for power purposes, and were protesting against further concessions in the river to individuals or corporations. They urged that the St. Lawrence should be preserved for the people of Canada, should be kept absolutely under government control and developed only under some comprehensive scheme designed primarily in the interests of navigation and only secondarily in the interests of power. These representations of the Dominion Marine Association, be it noted, were not made with the deepening of the St. Lawrence as an immediate objective but simply to protect navigation and to save the river from despoliation; and this purpose they served well.

The "piecemeal" exploitation of the river ceased, and attention was then focussed upon the idea of comprehensive, uniform plans which would take proper care of the requirements of protection as well as of development. The Dominion Marine Association had urged the appointment of a St. Lawrence River Commission to study the subject and make recommendations. Such a commission was appointed but did not act and, the Treaty of 1909 regarding boundary waters having created the International Joint Commission, a body to which the problem could properly be referred, this important reference was made in 1919 and engineers were appointed. The

Commission held more than three hundred hearings in Canada and the United States, taking evidence from all points of view while the engineers were making examination of the river and preparing a report which was presented to the Commission in June, 1921, and was discussed at a public hearing in November of the same year. In December the Commission signed and submitted its report. There were definite findings as to the possibility and feasibility of the deep waterway project and unqualified recommendation that the work be undertaken. The engineers' report, known as the Bowden-Wooten Report, proposed that there should be nine locks, each 860 feet in length from centre to centre of quoins of gates, 80 feet wide, and built for an eventual depth of 30 feet over the sills; that canal sections should be 25 feet with a bottom width of 220 feet in through cuttings and 450 feet in submerged channels; that power should be developed (a) at the Long Sault, (b) in the Lake St. Francis-Lake St. Louis section, and (c) at the Lachine rapids; that the Long Sault development should be international and the remainder Canadian; that the river should be dammed also at Ogden Island, opposite the Morrisburg Canal, to control Lake Ontario levels and maintain them within a range of two feet. No power would be developed here although an alternative, two-stage scheme was presented which would divide the head between this point and the Long Sault, but at increased cost of first development and maintenance. The total cost was estimated at $252,728,200 to provide 25 foot navigation with necessary permanent work installed for 30 foot navigation in the future, and to include the cost of developing 1,464,000 h.p. electrical energy.

In May, 1922, the United States Government communicated its desire to negotiate a treaty with the Canadian Government to provide for the deepening of the river. But Canada required time for consideration and her reply intimated that "having regard to the magnitude of the project and the

large outlay of public money involved, the Canadian Government is of the opinion that it is not expedient to deal with the matter at the present time." This attitude the Government of Canada maintained for over two years, influenced, doubtless, by the reasons expressed in the answer quoted but in large part also by various other considerations, including the conflict between federal and provincial rights, questions of expediency as to treatment and use of the river, of the distribution of power, of the market for power and of the income to be expected.

The Province of Ontario through its Hydro-Electric Commission in 1923 offered to provide the cost of an initial development near Morrisburg, to include dam and lock and a power installation which would generate 300,000 h.p., but the proposal apparently could not be seriously considered on account of the many difficulties the case presented. Early in 1924, as the result of much correspondence through the British Ambassador at Washington, the Governments of Canada and the United States finally agreed to appoint an Engineering Board with a membership of six, three from each country, to consider the technical features of the problem in greater detail, and to appoint also in each country a national committee to enquire from national viewpoints into the wide questions involved. Each government agreed to appoint two technical officers to prepare in collaboration the terms of the reference to the Engineering Board. These various appointments were promptly made and by December, 1924, the reference to the Engineering Board had been framed. The inclusion in the reference of the diversion of lake water at Chicago as an item demanding consideration in the St. Lawrence problem accorded well with an emphatic plea made by the Dominion Marine Association against any action upon the St. Lawrence proposals before satisfactory settlement of the international question which Chicago's misappropriation of lake water had

raised. The Joint Board of Engineers presented their report to the two governments in November, 1926. A review of the report in detail is not within the scope of this short paper. Suffice it to say that, after first declaring that the withdrawals of water at Chicago were responsible for a permanent lowering of half a foot in the levels of Lakes Michigan and Huron and 4/10 of a foot in the levels of Lakes Erie and Ontario, and after recommending certain compensating works in the Niagara and St. Clair Rivers to maintain levels above those rivers, it dealt exhaustively with the St. Lawrence and recommended the undertaking, with some variations of plan from those of the earlier Bowden-Wooten report, at an estimated total cost of $394,025,000, with complete initial power installation and only a single stage development in the International Section, and at corresponding total cost of $423,571,000 with a two stage development. The United States Section of the Board recommended the first alternative with dam and power houses at the foot of the reach at Barnhardt Island and control gates at the head of the reach at Galop Island, and the Canadian Section recommended the two stage plan with two pools, the lower dam at Barnhardt Island and the upper at Ogden Island, just above Morrisburg. Channel and lock dimensions remained practically as in the earlier report. Certain appendices and plans were to follow the report, and these were completed and issued during 1927. These contain, as the result of further examination of the river bed and discovery of satisfactory foundation conditions, a third alternative submitted by the whole board providing for a two stage project with the upper dam at Chrysler Island below Morrisburg.

In the meantime the National Committees had been engaged in their investigations. The United States Committee, known as the St. Lawrence River Commission, with Mr. Hoover (now President-elect) as its chairman, seemed disposed to force the issue, while the Canadian Committee

adopted a different policy, its chairman refraining from any public declarations of opinion. In January, 1927, Mr. Hoover presented to President Coolidge a report which considered alternative routes to the sea and contained the following conclusions:

> "1. The construction of the shipway from the Great Lakes to the sea is imperative both for the relief and for the future development of a vast area in the interior of the continent. 2. The shipway should be constructed on the St. Lawrence route, provided suitable agreement can be made for its joint undertaking with the Dominion of Canada. 3. The development of the power resources of the St. Lawrence should be undertaken by appropriate agencies. 4. Negotiations should be entered into with Canada, in an endeavour to arrive at an agreement upon all these subjects. In such negotiations the United States should recognize the proper relations of New York to the power development in the international section."

The Canadian National Advisory Committee addressed a report to the Prime Minister in January, 1928, which was in due course made public. Space is lacking to summarize all its conclusions but some important points can be mentioned. The Committee agreed with the United States Commission that twenty-seven foot initial depth should be sought (which in rock would mean twenty-five foot draft); it declared the project feasible; it advised unhesitatingly against the undertaking at present if Canada were required to finance the immense outlay in the domestic section of the river and to assume one-half of the fresh financial obligations involved in the project as a whole; but it recommended initial development in the domestic section within the Province of Quebec where, with time to permit resultant electrical energy to be economically absorbed, private agencies might be able and willing to finance the entire work including necessary canalization in

return for the right to develop power; it recommended further that, in the international section, it would be reasonable to ask the United States to undertake the whole expense as Canada would even then have assumed the preponderance of outlay upon the channel from the head of the lakes to the sea. The following table was presented in support of this view:—

CANADA

Present Works:		
St. Lawrence ship channel	$ 30,000,000	
St. Lawrence and Welland canals	50,000,000	
Lock at Sault Ste. Marie, Ont.	5,560,000	
		$ 85,560,000
Proposed Works:		
Welland ship canal	$115,600,000	
National section St. Lawrence shipway, 27 ft. navigation and development of 949,300 h.p.	199,670,000	
		$315,270,000
Total for Canada		$400,830,000

UNITED STATES

Present Works:		
Dredging St. Clair and Detroit rivers	$ 17,536,000	
Locks at Sault Ste. Marie, Mich.	26,300,000	
		$ 43,836,000
Proposed Works:		
International section St. Lawrence shipway, 27 ft. navigation and initial development of 597,600 h.p.	$182,157,000	
To complete development—additional power, 1,602,000 h.p.	92,090,000	
Upper lake channels to 27 ft.	65,100,000	
		$339,347,000
Total for United States		$383,183,000

The Committee also recommended an international commission to supervise building, to maintain control and to regulate the St. Lawrence system; it suggested that Ontario might arrange to procure power from the Quebec section of the river; it concurred in public sentiment against the export of power and advised an early reply on these lines to the overtures made by the United States.

The recent publication of the notes exchanged between the two governments, in which Canada expressed willingness to negotiate terms such as those above set out and the United States presented a considerably different estimate of relative expenditures, was not hailed with any enthusiasm by the press of this country. On the contrary, public sentiment appeared to be strongly against any action which would in any way diminish or impair Canada's present enjoyment of the ownership and control of the existing St. Lawrence canals and of her share of the International section of the river, or touch in any way her complete sovereignty over the river below Cornwall. This sentiment is stronger because of the Chicago diversion which without a "by your leave" sends *at least* 8,000 or 9,000 cubic feet of lake water per second into the sources of the Mississippi at the expense of the St. Lawrence.

It may be that the near approach of a condition of serious congestion in some of the St. Lawrence canals will hasten action which would otherwise be indefinitely postponed. Before a special committee of the Canadian Senate which met during the past summer Colonel Dubuc, Chief Engineer of the Department of Railways and Canals, presented startling evidence of the steady and substantial annual increase in the amount of freight carried and registered vessel tonnage passed through the St. Lawrence canals. The war checked this, but recovery was rapid. The year 1927 showed an increase of 30% over 1926. Compared with 1913, Lock 15 of the Cornwall Canal in 1927 showed an increase of 45% in lockages, 88%

in registered tonnage and 102% in cargo carried. This lock passed an average of 32 vessels per day in 1927. Its capacity is around 42, and in 1927 it was working at over 75% of its capacity. Theoretical capacity must be discounted as boats do not present themselves for lockage with clock-like regularity. "Bunching" increases congestion. Colonel Dubuc may be quoted:

> "You must not lose sight of the fact that the deep waterway will not be utilizable until eight or ten years after construction is started. With the last six or seven years as a guide it seems clear that even if you started the construction of the deep waterway to-day, long before you could complete it you would have congestion in the canals, and the present system would not be able to cope with the traffic that would offer.
>
> It will be diverted to American ports, or else it may find its way down to the lower end of Lake Ontario and then move by rail to Montreal at whatever extra cost this may be. It may equally be diverted by rail to Pacific ports or by boat to Georgian Bay ports and rail to the seaboard or by the new Hudson Bay route now under construction to Fort Churchill."

The recent announcement by the Minister of Public Works of the acceptance of the advice of the special committee of engineers appointed to consider the selection of a terminal at the foot of existing deep water for trans-shipment of cargoes to come through the new Welland Canal may reasonably be taken, in the absence of the committee's report which to date is withheld, as an indication of a desire to test the willingness of larger lake craft to venture into the St. Lawrence. If the selection of Prescott instead of Kingston (against the strong protests of the Canadian vessel owners and masters of the larger vessels who decline to traverse the dangerous Thousand Island Section) will actually draw heavy tonnage sixty miles nearer the seaboard without too heavy loss of vessel property

and cargoes and resulting prohibitive insurance rates, some of the arguments against the deepening of the river from Lake Ontario to Montreal will disappear.

The selection of Prescott as a terminal at least indicates some *rapprochement* of Ottawa and Washington because more than a dozen miles of the most difficult part of the river channel above Prescott lies in United States territory and if, as promised, the Welland Canal is to be opened in 1930 and its $114,000,000 investment is not to lie idle for some further time, our friends south of the international boundary must drill, blast and dredge a great quantity of granite rock during 1929 to provide for this dangerous channel even the minimum width of 450 feet which—on paper—has satisfied the Canadian engineers. This would not be mainly a labour of love as the United States port of Ogdensburg, opposite Prescott, may reasonably expect a trans-shipping business greater than Prescott's on account of the great volume of American tonnage able, because of moderate size, to move safely—and, because of treaty rights, to move "freely"—through Canada's new Welland Canal.

Whether many of these ships would proceed to Montreal if the river were opened for them is still a moot point, and the question of return cargoes of bulk freight west-bound is not the least important feature of the argument. Whether they would put to sea is quite well settled. The upper lake type of steamer is not built for the ocean. Such vessels would break their backs on the waves of an Atlantic storm, or lose their hatch-covers and deck houses, rolling in the trough of the sea. Their lines are too full forward and aft, their free-board too low, their construction too light, their engines at the stern rather than amidships; and they have single screws. The question whether ocean ships would come up inland does not involve considerations of safety to the same extent. These ships, once they lengthen their rudders and discard any arrogant

habits as to elbow-room, will be more interested in loading and unloading facilities suited to their type, but their chief concern will be the adequate assurance of available and profitable freights. It's a long, long way from the sea to Fort William, and it must be remembered that ocean tramps, always ready for the carriage of grain to Europe from Atlantic seaports in the United States, do not answer the demand for ocean space for export grain at Montreal until long after lake freighters by dozens are idle in that harbour waiting to unload the moment full elevators can be relieved. The long leagues, the fogs, the buoyed channels and the insurance premiums of the lower St. Lawrence are enough to make these tramps await at least the certainty of prompt and profitable cargoes.

The power question, which does not arise in the Thousand Island section, remains to be settled in the lower sections on both sides of the line; between New York State and the Union; between the Provinces and the Dominion, and internationally. In Canada a step in advance has been made by the submission of certain questions to the Supreme Court of the Dominion. Argument upon these a month or two ago disclosed a vast divergence of opinion as to the appropriate answers, while the court found serious fault with the questions themselves. These are still under consideration and it is apparent that judgment will be accepted as final only when ultimately rendered on appeal by the Judicial Committee of His Majesty's Privy Council in London. What further questions may then remain unsettled time will disclose.

The pressure from Eastern Ontario upon the Dominion for the use of the river for power has for the moment become less imperative since the Hydro-Electric Commission has resorted to the Gatineau for at least a temporary supply. But power available from this source cannot for long meet the growing demand. The first block of 94,000 h.p. furnished from it to the Hydro *was sold when turned on.* And now in

Quebec Province the Beauharnois Light, Heat and Power Company has come forward with proposals which at the same time demand consideration and arouse strong opposition. These have already been authorized by the Government of the Province of Quebec, subject to certain conditions, one of which is that the approval of the federal government must be obtained within a certain time. This approval is necessary under the Navigable Waters Protection Act, and although applied for in January last has so far been withheld. Objections have been filed by the Dominion Marine Association on behalf of Canadian inland shipping; by Canada Steamship Lines, Limited, as owner and operator of the steamers which run the rapids; by the Shipping Federation of Canada on behalf of ocean steamships which enter the harbour of Montreal; by the Cedars Rapids Manufacturing and Power Company and Montreal Light, Heat and Power Consolidated; by the Canadian Light and Power Company, and by the Great Lakes Harbours Association.

The applicant seeks permission to divert from Lake St. Francis in Hungry Bay at the eastern end of this lake the initial flow of 40,000 cubic feet of water per second through a power canal which would sweep on a wide curve some distance south of the river on a line best suited for excavation and dyke building, and would re-enter the river at Melocheville at the head of Lake St. Louis. The length of this canal would be over fifteen miles. Its width at the outset would be only 700 or 800 feet. The levels of Lake St. Francis and of the Soulanges Canal between Lakes St. Francis and St. Louis would be maintained by building certain dams in some of the river channels to restrict the flow of the river to the desired extent. But the application seeks also the right to enlarge this canal to a depth commensurate with the contemplated development of the whole river, and to widen it to 4,000 feet by further excavation and dyke building so that it may

take the full flow of the stream and permit the ultimate development of 1,900,000 h.p. of electrical energy.

The power plant would be at the lower exit of the canal and the full head between Lake St. Francis and Lake St. Louis, which now ranges from 71 to 80 feet, would be enjoyed. Locks would be provided at the foot of this canal to pass ships from one level to the other. The final work would be completed in time to be used when the other sections of the river are made ready.

But Canadian vessel owners have a wholesome fear of power promoters *dona ferentes*; and they have also a firm belief that the dominant right of navigation will not be subjected to this subservient right of power. They urge that vessels should not be compelled to navigate a canal of this length designed primarily to lead water to the applicants' turbines and in which the current on the applicant's own estimate may be 2.5 feet per second (about 1.7 miles per hour). They point out that it will be necessary to build guard gates at the head of this canal to afford some measure of protection against disaster in case dykes, power house or locks give way, and that the cost of these gates will be heavy on account of the flow of water and the width and depth of the canal. They call attention to the surging which will be occasioned by rejection of load when power is shut off, and to the lack of any precedent upon which to base reliable estimates of the forces to be developed or let loose by the immense flow of water. They say also that the carefully considered recommendations of the Joint Board of Engineers appointed by the two federal governments should be followed if the river is to be developed. These recommendations provide passage for vessels by locks and short canals at the head and foot respectively of this particular section of the river and propose to create a pool in this section by erection of a dam adjacent to the head of the lower canal. These relatively short canals will carry water *for navigation and lockage only,* and naviga-

tion through them and through the pool will not have the elements of danger present in the Beauharnois Company's proposals. Finally, vessel owners say that because part of Lake St. Francis is international water and also because the government of the United States is interested in the preservation of that "free and open navigation of the St. Lawrence from, to and into the sea" provided for the citizens of that country by the Treaty of Washington in 1871, the application must be made or transmitted to the International Joint Commission.

The owners of the rapids steamers believe the dams to be erected in the river to compensate for the initial 40,000 c.f.s. would not prove adequate and would so alter currents and channels as to prevent navigation of the rapids. The margin of safety is too slight at present to withstand experimental tampering. The complete development under any plan would destroy the rapids, but the very heavy loss in tourist traffic would probably be less if navigation continued as under the plan of the Joint Board of Engineers in the natural bed of the stream. To some extent the river's scenic beauties would then be preserved even if its swift waters were stilled. There would be nothing pleasing in the prospect for a tourist crossing fifteen miles of flat country between the dykes.

Ocean shipping is concerned about the daily fluctuations in the levels of Montreal Harbour which would follow daily variations in Lake St. Louis caused by daily increases from average flow up to peak discharge through the proposed canal. The power companies now operating on this section of the river assert their prior claims to requisite water, and offer criticism with reference to ice conditions and the formation and effects of frazil. There is general concurrence of opinion regarding the dangers involved in any attempt to control the immense mass of moving water which will fill the proposed canal. No one can say from experience whether the kinetic energy of such mass of 350 million tons moving at 2.25 or 2.50

feet a second can be safely dissipated when power—as it must sometimes be—is suddenly shut off in case of accident, for the mass in question is hundreds of times greater than anything heretofore dealt with in a power canal.

The protests of Canadian vessel owners against this application have received support of the strongest character in the resolution adopted unanimously by the Great Lakes Harbours Association in annual general meeting at Toledo, Ohio, on November 16th, 1928. This large convention of authorized delegates from Municipal Councils, Chambers of Commerce, Harbour Commissions and other commercial bodies interested in navigation representing practically all the ports of the Great Lakes, declared itself emphatically against the method of development proposed and asked for the proper recognition of navigation as the superior right and for the acceptance of the plans of the Joint Board of Engineers. This, from an organization which avows in the same resolution that one of its main objectives is the opening of the lakes to the sea!

Probably the Canadian National Advisory Committee had no intention of inviting proposals such as that of the Beauharnois Company when making its recommendations as to the domestic section of the river, and probably, too, the Canadian Government will deem the time inopportune to attempt to take this application seriously. The pending reference to the courts and the need of further consultation with Washington —not to mention the criticism offered—will afford reasonable excuse to defer action on this particular matter. It will not be so easy, however, to defer action upon the report submitted by the Joint Board of Engineers when a final judgment comes from London and an acceptable way out of the financial difficulty presents itself. The nodding beam is being tipped towards early development of the river, with Mr. Hoover, Mr. Taschereau, the Hydro-Electric Commission of Ontario, the lake ports, the West and a 1928 Canadian crop of over 500,000,000 bushels of wheat in one of the scales.

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